



REMARKS

Claims 1-15 are pending with claim 1 withdrawn and claim 8-15 added by this paper.

Claim Amendments

Claim 2 includes an amendment to include the substantive features of the additive of claim 1. Also, claims 4-6, have been amended for consistency purposes and claim 7 cancelled as redundant. Applicants respectfully submit that these amendments do not narrow the scope of the claims.

Claim Rejections Under 35 U.S.C §103

Claims 2-7 stand rejected as allegedly being unpatentable over JP 10-152544 (JP) in view of U.S. Patent No. 5,683,784 (Nakao). Applicants respectfully traverse these rejections.

The action admits that JP does not disclose an additive including a cross-linking agent. To account for this deficiency, the action alleges that Nakao teaches using a cross-linking agent to cross-link epihalohydrin resin to provide water resistance to the resin, and cites column 3, lines 30-46, for support.

However, Nakao discloses a cationic resin layer that may be formed beneath a boehmite surface layer to increase absorption of dye (see column 3, lines 14-16). Nakao discloses that the cationic resin layer can be a polyethylene imine, a polyamide resin, a polyamine resin, a reaction product of a low molecular weight polyfunctional amine with a compound polyfunctional to amino groups, such as epihalohydrin, an acrylamine copolymer resin (such as a quaternary ammonium salt polymer), a polyamide epichlorohydrin resin, or a modified product thereof (column 3, lines 23-29). With respect to providing a means for cross-linking, Nakao only suggests adding a thermosetting resin to a cationic resin such as polyamine or polyethylene imine, or curing by addition of an electron beam or an ultra violet ray curable resin (column 3, lines 34-39).

However, Nakao fails to teach or suggest a cationic resin obtained by the reaction of ammonia in combination with secondary amine, an epihalohydrin, and a cross-linking agent. Rather, Nakao at most discloses that a cationic resin can be a reaction product of a polyfunctional amine with a epihalohydrin. Consequently, one of skill in the art would have insufficient motivation to modify


the resin of JP, which includes ammonia and the cross-linking agent.

What is more, Nakao fails to teach or suggest a cationic resin obtained by the reaction of a secondary amine, an ammonia, an epihalohydrin and a cross-linking agent. Rather, Nakao only discloses adding a thermosetting resin to a cationic resin, such as polyamine or polyethyl imine, and is silent about adding a thermosetting resin to a cationic resin of, e.g., a reaction product made of a polyfunctional amine and epihalohydrin. Consequently, Nakao fails to provide specific motivation to render the claimed invention unpatentable.

Furthermore, a thermosetting resin is not a cross-linking agent as defined by the present invention. Rather, a thermosetting resin is resin that has already been crosslinked. Particularly, a thermosetting resin is not a cross-linking agent comprising at least one compound with two or more aldehyde groups, epoxy groups or isocyanate groups (relevant to claim 10) or a cross-linking agent comprising at least one multifunctional epoxy compound (relevant to claim 11). Also, Nakao discloses alternatively curing by an addition of an electron beam or ultra violet ray curable resin. This method does not teach or suggest the present invention because the cationic resin layer is applied to fiber material and the cross-linking reaction is carried out on the fiber material. There is no cross-linking agent. In marked contrast, the present invention provides an additive where the cross-linking reaction occurs when the additive is prepared. In summary, the alleged combination of references, even if combinable, cannot provide sufficient motivation for one skilled in art to render the claimed invention obvious.

The Commissioner is hereby authorized to charge any fees associated with this response or credit any overpayment to Deposit Account No. 13-3402.

Respectfully submitted,

 (33,103) *for*
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